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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/591,662
Filing Date: September 05, 2006
Appellant(s): OTT ET AL.

Jay E. Rowe, Jr. Ph.D.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 01 November 2011appealing from the Office action mailed 22 August 2011.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 15, 16 17 18 19 20 21 22 23 24 25

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(**5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being

maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

WO99/50362	Pears and Gregory	03-1999
US 3,526,655	Argabright, P.	09-1970
US 2005/0043467	Bruchmann et al.	02-2005
DE 101 61 156	Bruchmann et al.	06-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

Claims 15-22, 24-25 are rejected under 35 U.S.C. 103(a) as being obvious over Pears et al. (WO 99/50362), as evidenced by Argabright (US 3,526,655).

As to Claims 15 and 25:

Pears et al. discloses making water dispersible polyurethanes (page 1 lines 23-34). Materials are indicated to be made in descriptive steps i) and ii) (page 1, lines 23-

30, and pages 4-6); the method comprises (a) and (b) components, to make a water-dissipatable polyurethane (page 1 lines 23-24) indicated to be diisocyanates and OH containing materials respectively (page 2 lines 20-33) including two isocyanate reactive groups materials {taken as diol material}.

The compositions comprise polyisocyanates or diisocyanates, including polyisocyanates comprising 15 carbons (page 2 lines 20-23) {**addressing Claim 15 in part**}, modified polyisocyanates, modified isocyanates, and their mixtures (page 2 lines 8- 26), including those that are reacted with hydroxyl or primary or secondary amines (page 2 lines 27-33), indicated to include diol material (page 3 lines 14-15) {**addressing Claim 25 in part**}; modified isocyanates are indicated to also comprise dimethylol priopionic acid to facilitate water dispersing {taken as being hydrophilic} (page 3 lines 14-17).

Materials are to be mixed and reacted in a solvent until a isocyanate material is finished reacting with isocyanate reactive material (page 4 lines 29-34); a preferred solvent indicated for use in material preparation is N-ethyl-2-pyrrolidone (page 7 lines 30-31 and 35-36) {taken as 1-ethyl-2-pyrrolidone or N-ethylpyrrolidone (Official Notice); as known and employed in the isocyanate art as or N-ethylpyrrolidone and N-methylpyrrolidone as an a-protic solvents, as evidenced by Argabright (col 2 lines 55-71)} and is indicated to be placed into water in a ratio of water to solvent being more preferably 99:1 (page 8 lines 21-26) {the amount of solvent percent taken as being less when considering including reactive components in the composition}. The subsequent

resultant materials are indicated to be mixed in a liquid indicated to be water (page 7 lines 3-9).

Further as to Claims 15 and 25:

Although Pears et al. teaches that organic solvents are to be employed to lower mixture viscosity, citing for example the use of N-methyl pyrrolidone (page 4 lines 29-31), and although Pears et al. teaches the interchangeability between n-methyl pyrrolidone and n-ethyl pyrrolidone when making water dispersible compositions (page 7 lines 35-36); and although the reference is taken as suggesting employing the same non-isocyanate reactive materials for making isocyanate derivative materials as are employed in the water dispersion; the reference does not further indicate that the polyisocyanate is made in N-ethylpyrrolidone.

On the other hand, the difference between the compound taught by Pears et al. and instant Claim 15, is that Pears et al. teach compounds having a having hydrogens on the methyl of an N-methyl moiety, while instant Claim 15 employs a compound having an additional methyl group. However, instant Claim 15 is rendered obvious in view of the compounds (and process) taught by Pears et al since it has long been held that substitution of methyl for hydrogen on a known compound is not a patentable modification absent unexpected or unobvious results. In re Lincoln, 126 USPQ 477, 53 USPQ 40 (CCPA 1942).

In the instant case, the compound taught by Pears et al. has non-isocyanate reactive, solvent properties, a person having ordinary skill in the art would reasonably

expect a methyl-substituted derivative of a compound taught by Pears et al. would also possess non-isocyanate reactive, solvent properties.

Therefore, **Claim 15, and Claim 25** are rejected under 35 U.S.C. 103 as obvious in accord with MPEP 2144.09 regarding Homology and Isomerism which states:

"Compounds which are position isomers (compounds having the same radicals in physically different positions on the same nucleus) or homologs (compounds differing regularly by the successive addition of the same chemical group, e.g., by $-CH_2-$ groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties".

It would have been obvious to one of ordinary skill in the art at the time of the invention, to have employed a methyl-extended homolog of a chemical taught by Pears et al., to provide for reduced viscosity of reactive isocyanate compositions, by employing a homolog of the materials taught by Pears et al., with a reasonable expectation of success.

Further as to Claim 16 a):

Materials are reacted in an organic solvent indicated per step (i) (page 4 lines 17-18) with isocyanate materials and isocyanate reactive materials in a ratio of about 1.1 to 2 to 1; isocyanates indicated to be dissociates (page 2 lines 8-18).

Further as to Claim 16 b):

Isocyanate reactive materials are indicated to be diols; the diols employed are indicated to have molecular weights of 3000 or 2000 and other diol materials employed

are indicated to have molecular weights below 400 such as cylcohexyldimethanol {C8H16O2 molecular weight of 8x12 + 16x 2 + 16 = 96 + 32 + 16 = 96 + 48 = 144} (page 4 lines 9-13); {for amounts see further below}.

Further as to Claim 16 c):

Materials employed are also indicated to be used for neutralizing carboxylic acid groups that are allowed to fully or partially neutralize with non-ionic materials indicated to be primary or secondary amines or polyols (page 3 lines 33-39).

Further as to Claims 16 d) and Claims 17-22:

Water dispersing group materials are also present (page 2 lines 34-40 and page 3-4 bridging paragraph and page 3 lines 8-11), that include carboxylic acid groups, indicated to be dimethylol priopionic acid {**addressing Claims 17-21**}, or present in the form of a polyol or polyamine with such groups comprising a mixture of ionic or non-ionic groups {**addressing Claim 22**}.

Further as to Claim 16:

The example in Table 1 (page 10) is also taken as applicable to Claim 16 a), b), c), d) per the following:

Table 1 indicates a composition, comprising an isocyanate-reactive material form stage 1 (pages 9-10), reacted to form a terminated material comprising a material that is not the same as the materials employed to make the polyurethane prior to endcapping, comprising 1) isophorone diisocyanate [corresponding to 16 a)]; 2) propylene glycol (MW 1000) {40.56 g} [corresponding to b1)]; 3) dimethylol propionic acid MW 134.1 {6 g} [corresponding to 16 d)]; where diol material of 16b1) corresponds to 100%.

In regard to total diols including 16d) materials, the following applies:

Where the mole percentages of diol material apply as follows:

{100x(40.56/1000)/(0.04056 + 0.04474)*} + {100x(6/134.1)/(0.04056 + 0.04474) = 100x0.04056/0.0853 + 100x0.04474/0.0853 = 47.55 mol% polypropylene glycol + 52.5% dimethylol propionic acid = 100% diols with 16b2) materials being taken as zero.

[Molecular weights are per Official notice and readily recognized in the art]

Further as to Claim 24:

Materials are indicated to be printed onto textiles or paper (page 14 lines 29-32) {taken as coating small areas on paper}.

It would have been obvious to one of ordinary skill in the art at the time of the invention, to have employed a homolog of non-isocyanate reactive solvent employed by Pears et al., while further employing the teachings of Pears et al. to make the same or similar materials in the same or similar manner with a reasonable expectation of success.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pears et al. (WO 99/50362) as evidenced by Argabright (US 3,526,655), and as applied to Claims 15-22, 24-25 above, in view of Bruchmann et al. (DE 101 61 156, citations refer to the English equivalent, US 2005/0043467).

Although Pears et al. suggests that n-ethyl 2-pyrrolidone, known in the art the art as an a-protic solvent {as evidenced by Argabright col 2 lines 55-71}, is employed for polyurethane preparation; and that catalysts, including organo-tin material and others

"as known in the art" are employed in either step i) or ii) (Pears et al. page 4 lines 26-28); Pears et al. does not further indicate the employment of a cesium catalyst.

On the other hand, Bruchmann et al. teaches aqueous dispersions comprising a polyurethane (page 1 [0001]) composed of diisocyanates having 4 to 12 carbons (page 1 [0018]), diols of which 10 to 100 mol% have a molecular weight of from 500 to 5000 and 0 to 90 mol% gave a molecular weight of form 60 to 500 (page 1[0003]-[0005]), and monomers containing at least one isocyanate group or at least one isocyanate-reactive group and further carrying at least one hydrophilic group or potentially hydrophilic group (page 1 [0006]). The polyurethane is made by preparing polyurethane prepolymers, dispersing them in water, and then chain extending them with polyamines (page 4 [0058]).

Bruchmann et al. indicates that the cesium catalyst employed is employed during the reaction (page 1 [0009] and page 5 [0077]); the catalyst being deployed in water or an a-protic solvent (page 5 [0079).

Bruchmann et al. also teaches that tin catalysts are toxic and should be avoided (page 1 [0012] and [0015]) while the reference further teaches that unwanted branching is avoided, and that the catalysts are easier to implement (page 6 [0099]).

Although Bruchmann et al. teach that additional solvent employed should be kept below 10% (page 5 [0085]), the amount of n-ethyl 2-pyrrolidone, suggested by Pears et al., is indicated to be as low as 1%.

It would have been obvious to one of ordinary skill in the art at the time of the invention, to have employed a non-toxic catalyst, such as a cerium salt as suggested by

Bruchmann et al., instead of organo-tin material taught by Pears, to provide for easier to implement, safer compositions with less branching, in the compositions taught by Pears, ready for improvement, by employing cesium catalysts with the same application employing the same similar materials, with a reasonable expectation of success.

(10) Response to Argument

Applicant's arguments filed with the Appeal Brief of November 01 2011 have been fully considered but they are not persuasive.

(A) Applicant argues In regard to Pears (WO 99/50362) as evidenced by Argabright (US 3,526,655) {page 4 of 15 and pages 5-7}:

(1) That Claim 15 the Affidavit, applicable to providing unexpected results, regarding steam resistance, is not comparable with the Pears prior art of record as Pears employs colored polyurethane and that "the Examiner appears to require that the colored polyurethanes be prepared for comparison (page 7 penultimate paragraph); (2) that the Examiners makes an inconsistent hypothesis regarding presented data (page 8, 1st full, double spaced paragraph); that for Claim 24: Pears is not directed to applications regarding the same field of endeavor for the present invention would not have improved weatherability (page 9 1st 3 paragraphs).

As to (1): In response, Pears makes polyurethane and then colors it (page 14 lines 18 to 29), the coloring material is added to complete the composition; polyurethane

being indicated a made with, "for example N-methyl pyrrolidone" (page 4 lines 17-34), an a-protic solvent as evidenced by Argabright (col 2 lines 55-71).

As the reference discloses making polyurethanes, and as further indicating making polyurethanes with a solvent, applicant would be expected to show a comparison with the manner in which Pears isocyanate material is made with different solvents without requiring further adding of colored material, even though the light of the instant Specification indicates that the compositions are prepared and may additionally be mixed with other components typical for cited applications, examples being dyes and pigments (instant Specification lines 28-30).

(2) In response to Applicant's argument that using a homolog for the same or similar material is overcome in that the properties for which the material is used are unexpected, the fact that applicant has recognized that non-claimed steam resistance is improved due to the alleviation of discoloring {Affidavit, pages 2-3} is not taken as requiring that a homolog would not be expected to function as a a-protic solvent when applied as similar homolog material for the application taught by Pears.

(3) In response, Pears teaches that materials are indicated to be printed onto textiles or paper (page 14 lines 29-32) {taken as coating small areas on paper}.

B) That Bruchmann et al. does not further address deficiencies of Pears et al. as evidenced by Argabright as further applied to Claim 23.

In response, as Pears et al. per evidence by Argabright is not found deficient, rejections regarding Claim 23 are not deficient.

The rejections stand.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Aaron J. Greso/

Conferees:

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